

So That's What They Look For

An inside look into Form CMS-2786R

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Agenda

- RO V Life Safety Code staff structure
- Detailed look into CMS-2786R
 - Example pictures provided when available
- Annual Waiver Process
- FSES Process



RO LSC Structure

- Safety Engineers
 - Stephen Pelinski (312)886-5215
 - Surveyor
 - IL, MI, MN State Leader
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 - Surveyor
 - IN, OH, WI State Leader
- LSC Principal Program Representative (PPR)
 - Daniel Kristola
 - Annual waiver and FSES reviewer



K11 – Fire Barriers

- Fire barriers are the fire resistance rated (FRR) walls that separate the nursing home from a nonconforming building.
- The walls must be at least 2hr FRR.
- A fire barrier could also be a rated wall that separates two portions of the nursing home.
- The wall will be inspected for proper construction and to ensure that all penetrations are properly firestopped.



K11 – Fire Barriers Cont.

- All doors in the fire barrier will also be inspected.
- Doors must have labels to show they are at least 90min FRR.
- Doors must self-close and latch into the frame.
- If double doors, there must be an astragal at the meeting edge of doors.
- Hold open devices must release upon activation of the fire alarm system.



K12 – Construction Type

- NFPA 101 Tables 18.1.6.2 and 19.1.6.2 list acceptable construction types.
- Tables are broken down into five construction types.
 - Type I and II – noncombustible
 - Types III, IV, and V – combustible
- K12 takes construction materials, fire ratings, sprinkler coverage, and number of stories into consideration.



K12 – Construction Type Cont.

- 19.1.6.2 contains construction types that are acceptable without a complete sprinkler system.
- All nursing homes, regardless of construction type, must be completely sprinklered by Aug. 13, 2013.

**K103 – Interior Wall Construction**

- Interior walls in Type I and II buildings must be constructed of noncombustible or limited-combustible material.
 - Essentially saying wood should not be used as a construction material in a noncombustible building.

**K14/K15 – Interior Finish**

- Flame spread rating documentation is needed for any interior finish applied to walls that is more than 1/28th of an inch thick.
- The flame spread rating must be from a test conducted in accordance with NFPA 255.
 - Mostly a concern when carpet has been installed on walls. Carpet is typically tested as a floor application in accordance with NFPA 253.
- NFPA 253 and NFPA 255 are NOT equivalent.
- Flame retardant agents can be applied to achieve an acceptable flame spread rating.
 - Agent must be listed for use with material on which it will be applied.

**K16 – Interior Finish**

- Interior finish requirements for floor finishes.
- Only required for newly installed floor finishes in nonsprinklered areas.
 - Newly installed – Any floor finish installed after March 13, 2003.

**K17 – Corridor Walls**

- Corridor walls must extend to the underside of the roof or floor above in areas that are not fully sprinklered and the walls must have at least a 30min FRR.
- Corridor walls can terminate at a monolithic ceiling in an area that is not fully sprinklered.
 - The entire smoke compartment must have the monolithic ceiling to use this exception
- Corridor walls can terminate at a smoke resisting ceiling in a fully sprinklered area.

**K17 – Corridor Walls Cont.**

- There are eight exceptions for existing health care for spaces that are allowed to be open to the corridor.
- Most common errors in applying the exceptions:
 - Space is used for patient treatment (Therapy Rooms)
 - Space does not have 24hr supervision
 - Space is used for storage that is deemed hazardous



K17 – Corridor Walls Cont.

- Openings in corridor walls cannot exceed 20sqin (80sqin in fully sprinklered areas).
- Openings created by sliding glass windows fall under same criteria and openings are measured when window is fully open.
 - Does not apply to a sliding glass window at a nurses station
 - Space open to the corridor exceptions can be applied for a sliding glass window to a receptionist area

**K17 – Corridor Walls Cont.**

- Kitchen to dining room pass through windows are acceptable if the dining room is separated from the corridor by acceptable walls.
- These pass through windows may not be acceptable if the dining room is open to the exit access corridor.
 - Space open to the corridor exceptions cannot be applied to the Kitchen.
 - To keep the pass through, the opening must be protected in a manner that would automatically close the opening upon the local detection of smoke or activation of the fire alarm system.

**K17 – Corridor Walls Cont.**

- Transfer grilles are not acceptable in corridor walls.
 - Dampers do not make transfer grilles permissible

**K18 – Corridor Doors**

- Corridor doors must have at least a 20min FRR in an area that is not fully sprinklered.
 - Labeled door
 - 1.75in solid core wood door
 - Door frames must also be FRR or metal
- Corridor doors must resist the passage of smoke.
 - CMS S&C Memo 07-18
 - Not fully sprinklered – No more than .25in gap between the door jamb and face of door
 - Fully sprinklered – No more than .5in gap between the door jamb and face of door
 - Door jamb acts as an astragal, so the door cannot sag below the jamb

**K18 – Corridor Doors Cont.**

- Other common deficiencies with corridor doors
 - Doors held open by devices that do not release with a push or pull of the door.
 - Kick-stop, wedge, furniture, etc.
 - A magnetic hold-open, friction catch, or closer-brake are acceptable examples.
- Doors do not latch or lack a latching device.

**K22 – Exit Signs**

- Access to exits must be indicated by appropriate exit signs when the path to the exit is not obvious.
 - Directional arrows incorrectly direct evacuees
- When a door that is not an emergency exit but it is obvious that it leads outside the door must be marked with a “NO EXIT” sign.
 - LSC Section 7.10.8.1 specifies the dimensions of the letters on the signs and the language
 - Existing signs do not need to meet 7.10.8.1 if acceptable to AHJ



K20 – Vertical Openings

- Vertical openings must be enclosed with at least 1hr FRR construction.
 - LSC Section 8.2.5.4, existing enclosures in existing buildings have a 1/2hr FRR, does not apply because the occupancy chapter requirement supersedes it.
- Doors in vertical openings must have a 1hr FRR, must be self-closing, and must normally be kept closed.



K20 – Vertical Openings Cont.

- Enclosure must extend from the bottom to the top of the building. Otherwise, the top and/or bottom of the enclosure must be capped with 1hr FRR construction.
 - Shaft can terminate in a room related to the use of the shaft if the room meets all FRR requirements for vertical openings (Laundry chute termination room)
- Penetrations into vertical openings must be properly firestopped to maintain the 1hr FRR.



K20 – Vertical Openings Cont.

- FSES and Vertical Openings
 - An FSES can be used to achieve compliance in lieu of correcting some vertical opening related deficiencies
 - Enclosures that are not constructed with the proper rating
 - Enclosures that are not complete from the bottom of the building to the top
 - An FSES cannot be used to achieve compliance for the lack of required fire dampers in duct penetrations of vertical opening enclosure walls. Similarly, an FSES cannot be used for improper installation of required fire dampers.
 - This deficiency is actually an HVAC deficiency out of NFPA 90A
 - An FSES fails when there is a lack of compliance with NFPA 90A (CMS-2786T Table 8.C.)



K21 – Self-Closing Door Hold-Opens

- Doors in exit passageways, stairway enclosures, horizontal exits, smoke barriers, and hazardous areas can only be held open by a device that automatically closes the door upon activation of one of the following:
 - Fire alarm system
 - Local smoke detector
 - Sprinkler system



K21 – Self-Closing Door Hold-Opens Cont.

Unacceptable Hold-Open Acceptable Hold-Open



K33 – Exit Stairways

- Similar requirements to K20 for stairway enclosure construction.
- No enclosed useable space within an exit stairway including under stairs
 - Enclosed space is permitted under stairs if the space is constructed with same FRR of stairway and access to the space is not from within exit stairway
- Unenclosed spaces within stairway shall not be used for any purpose that may interfere with egress
 - No storage or equipment installation in stairway
 - There is no exception to allow storage if the stairway is protected by sprinklers



K33 – Exit Stairways Cont.

- No storage or equipment installation in stairway
 - NFPA A.7.1.3.2.3 – This provision prohibits the use of exit enclosures for storage or for installation of equipment not necessary for safety. Occupancy is prohibited other than for egress, refuge, and access. The intent is that the exit enclosure essentially be “sterile” with respect with fire safety hazards

**K23/K24 – Smoke Compartmentation**

- K23 - There must be a smoke barrier to form at least two smoke compartments on every sleeping floor where there are more than 30 residents.
- K24 – Smoke compartment shall not exceed 22,500sqft and travel distance to smoke barrier door cannot exceed 200ft.

**K25 – Smoke Barriers**

- Smoke barrier walls must have a 1/2hr FRR. (1hr FRR for new construction)
- Smoke barriers must be continuous from outside wall to outside wall or to another smoke barrier.
- Smoke barrier must be continuous from the floor to the floor above or the roof.
- Smoke barriers cannot terminate at the bottom of a roof/ceiling assembly.

**K25 – Smoke Barriers Cont.**

- Smoke barrier penetrations must be properly firestopped.
 - Existing penetrations must only be smoke tight
 - New firestopping must maintain the fire resistance rating of the smoke barrier by means of a listed through penetration system
 - Noncombustible penetrations can be firestopped with rigid materials
 - Combustible penetrations must be firestopped with through penetration systems that incorporate intumescent materials that expand when the penetration burns away

**K25 – Smoke Barriers Cont.**

- Windows in smoke barriers must be protected by fire-rated glazing or wired glass and must be in steel frames.
- K26 – There must be adequate space on each side of the smoke barrier for residents.
 - At least 30sqft per resident in the total of all corridors, resident rooms, dining rooms, and other low hazard areas

**K27 – Smoke Barrier Doors**

- Smoke barrier doors must be 20min FRR
 - 1.75in solid bonded wood core can be assumed 20min FRR
- Doors must be self-closing
- Doors that swing in the same direction and have an astragal shall be equipped with a door coordinator that will ensure the doors close in the proper order



K28 – Smoke Barrier Doors

- Smoke barrier doors shall provide clear width of 32in
- Vision panels must have fire rated glazing or wired glass and must have steel frames



K104 – Smoke Dampers

- Penetrations of smoke barriers by ducts are protected with smoke dampers
 - Not required if the HVAC system and there is a complete sprinkler system on both sides of the smoke barrier
- Dampers are required to be inspected and tested every 4 years
 - Recommended every 2 years
 - 6 year maintenance waiver only applies to hospitals



K29 – Hazardous Areas

- Nonsprinklered hazardous areas are required to be separated from other areas by a 1hr FRR enclosure.
 - If ceiling is not 1hr rated, the walls must extend to the roof.
 - Doors are required to be 45min FRR.
 - Doors must self-close, latch, and can only be held open with a device that is compliant with K21



K29 – Hazardous Areas Cont.

- Sprinklered hazardous areas are required to be separated from other areas by a smoke resisting enclosure
 - If ceiling is not smoke resisting, the walls must extend to the roof
 - Doors are required to be smoke resisting (No louvers)
 - Doors must self-close, latch, and can only be held open with a device that is compliant with K21



K29 – Hazardous Areas Cont.

- Hazardous Areas may include, but are not limited to, the following areas:
 - Boiler and Fuel-Fired Heater Rooms
 - Laundry rooms (Over 100sqft)
 - Repair and Paint Shops
 - Laboratories (Severe hazard is K31)
 - Combustible Storage Rooms (Over 50sqft)
 - Trash Collection Rooms
 - Soiled Linen Rooms



K29 – Hazardous Areas in New Construction

- Sprinklers are required in all new construction, so certain hazardous areas are required to have a 1hr FRR enclosure in addition to the sprinkler protection
 - Boiler and Fuel Fired Heater Rooms
 - Laundry Rooms(Over 100sqft)
 - Laboratory(Severe Hazard)
 - Paint Shops(Less than Severe Hazard)
 - Maintenance Shops
 - Soiled Linen Rooms
 - Combustible Storage Rooms(Over 100sqft)
 - Trash Collection Rooms



K30 – Gift Shops

- Must be protected as a hazardous area when used for storage or display of combustibles in hazardous quantities
- Must have smoke resisting walls if displays are not in hazardous quantities, have separate protected storage, and are completely sprinklered
 - Can be open to the corridor if less than 500sqft

**K211 – Alcohol Based Hand Rubs(ABHR)**

- Where ABHR dispensers are installed:
 - The corridor must be at least 6ft wide
 - Maximum capacity per dispenser is .3gal(.5gal in suites of rooms) – 1.2L and 2.0L
 - Minimum 4ft spacing between dispensers
 - No more than 10gal(37.8L) in one smoke compartment

**K211 – ABHR Cont.**

- Where ABHR dispensers are installed:
 - Storage of quantities greater than 5gal(18.9L) must meet requirements of NFPA 30
 - Dispensers are not installed over or adjacent to an ignition source
 - Light switch, electrical outlet, electrical equipment, etc.
 - No measurements to define distances
 - If adjacency is in question, look for evidence of splash from ABHR
 - If floor is carpeted, building must be fully sprinklered

**K32 - Exits**

- Not less than two exits are provided for each floor or smoke compartment in a building
 - One of two required exits may be a horizontal exit
 - Evacuation from a smoke compartment through a door that is not a direct exit shall not require returning to the smoke compartment of fire origin to reach a direct exit

**K34 – Means of Egress (Stairways)**

- Stairways and smokeproof towers must:
 - Meet dimension standards of LSC Table 7.2.2.2.1(a) or (b)
 - Be constructed with completely noncombustible construction in Type I or II buildings
 - Have guards when more than 30in above grade or floor below(Also applies to ramps)
 - At least 42in high
 - Must have intermediate rails that would stop a 4in sphere

**K34 – Means of Egress (Stairway) Cont.**

- Stairways and smokeproof towers must:
 - Have handrails installed between 34in and 38in that extend for the entire stairway(Also applies to ramps)
 - Existing handrails permitted down to 30in
 - New handrails have many requirements regarding shape, size, continual graspability, etc.
 - Single steps or ramps from a sidewalk to a vehicular way are not required to have handrails
 - More requirements at LSC Section 7.2.2 and 7.2.3



K35 – Means of Egress (Exit Width)

- Requirements specific to health care
 - .6in per person for exit stairs (.3in in fully sprinklered buildings)
 - .5in per person for doors, ramps, horizontal exits (.2in in fully sprinklered buildings)
- Other areas must meet general requirements in Section 7.3
 - Means of egress must be sufficient for occupant load of story or other occupied space
 - Capacity calculations are based on evacuation of one story at a time
 - Converging means of egress must be sufficient to accommodate both means of egress from the convergence point

**K36 – Means of Egress (Travel Distance)**

- Travel distance measured in accordance with Section 7.6
 - Measured on the floor, along natural path of travel (closest exit), curving around corners with 1ft clearance, and ending at the center of the door
- Travel distance from exit access door to exit shall not exceed 100ft (150ft in fully sprinklered building)
- Travel from any point in a room to an exit shall not exceed 150ft (200ft in fully sprinklered building)
- Travel from any point in a suite to an exit access door shall not exceed 100ft

**K37 – Means of Egress (Dead-end Corridors)**

- Existing dead-end corridors are permitted if it is impractical to alter them
- Dead-end corridors cannot exceed 30ft in new construction
 - Cannot create a new dead-end corridor that exceeds 30ft when altering a facility's evacuation plan

**K38 – Means of Egress (Accessibility)**

- Walking surface must be level, clear, and unobstructed at all times and useable under all weather conditions
 - Storage not permitted in corridors
 - Abrupt changes in elevations shall not exceed 1/4in
 - Under 1/2in can be beveled
 - Over 1/2in must be corrected by other means
 - Snow, ice, water, soft ground are examples of impediments that can obstruct egress by individuals that use walkers, wheelchairs, or require other forms of assistance

**K38 – Means of Egress (Painted Doors)**

- Exit doors or exit access doors cannot be painted/disguised in a manner that obscures their use as a door
 - A door that contains a window and has a compliant exit sign above the door can be painted if a cognitively aware individual can still tell it's an exit door
 - The window cannot be painted
- This may also be cited at K72

**K38 – Means of Egress (Locked Doors)**

- Special locking arrangements are permitted under certain circumstances in health care facilities
 - Locks are permitted on doors in a means of egress if residents have a clinical need for the extra security measures
 - Door lock regulations also pertain to gates in the means of egress
 - Magnetic locks must release upon activation of fire alarm or loss of power
 - Doors can be locked from the outside to prevent unauthorized entry without obstructing egress



K38 – Means of Egress (Locked Doors Cont.)

- Special units – All residents have clinical needs
 - All egress doors can be locked
 - All staff members that work in that unit must have the knowledge and ability to unlock doors
 - All staff must have keys (A single key at a nurses station is not acceptable), or
 - All staff must know code and know how to use keypad
- Mixed Population – Not all residents have clinical needs
 - Doors can be locked, but staff, visitors, and residents without clinical needs must have ability to use doors



K38 – Means of Egress (Locked Doors Cont.)

- Delayed-egress locks
 - Permitted on all doors regardless of clinical needs of residents
 - Delay of 15 seconds permitted after pressure applied to door for no more than 3 seconds (30 sec delay exception)
 - Doors must have signs that read:
 - PUSH UNTIL ALARM SOUNDS DOOR CAN BE OPENED IN 15 SECONDS
 - No more than one delayed-egress lock in means of egress
 - Including gates



K38 – Means of Egress (Locked Doors Cont.)

- Delayed-egress locks Cont.
 - Locks are permitted if the building has either:
 - A complete fire detection system in accordance with LSC Section 9.7
 - A complete automatic sprinkler system in accordance with LSC Section 9.6
- Sensor-controlled locks must meet delayed-egress lock requirements if they lock in that manner
- Deadbolt locks are not permitted unless the deadbolt releases with the same action of the door handle



K39 – Means of Egress (Corridor Width)

- Width of exit access corridors or aisles must be at least:
 - 4ft in existing health care
 - 8ft in new health care
- Measured at the narrowest point
- The constructed width must be kept clear
 - Not permissible to have 2ft of storage in a 6ft wide corridor in an existing building
- Projections less than 3.5in shall be permitted at 38in and below
 - S&C Memo 04-41 – Wall mounted touch screens



K40 – Means of Egress (Door Width)

- Exit access doors and exit doors must be swinging doors and are:
 - At least 32in in clear width in existing buildings
 - Existing 34in doors that have less than 32in clear width
 - Existing 28in doors where fire plan does not require evacuation by bed, gurney, or wheelchair
 - At least 41.5in in clear width in new buildings
 - 32in in exit stairway enclosures



K41/K42 – Means of Egress (Exit Access Doors)

- K41 - All resident rooms have a door to a corridor or directly to grade
 - There can be one intervening room between the resident room and the exit access corridor
 - Cannot be hazardous
- K42 – Any resident room or suite of resident rooms larger than 1000sqft have at least 2 exit access doors remote from each other
 - 2500sqft when non-resident room suites
 - Remote is $\frac{1}{2}$ the measurement of the largest diagonal distance in the room
 - $\frac{1}{3}$ in fully sprinklered building



K43 – Means of Egress (Exit Access)

- Resident room doors shall not require a key to open from the egress side

**K44 – Means of Egress (Horizontal Exit)**

- Not less than 30sqft per resident available on the other side of the horizontal exit
 - Occupiable spaces are permitted for calculation
- Horizontal exit doors are not required to swing with egress travel in existing buildings
- Horizontal exit doors must be swinging with 32in clear width
 - Horizontal sliding doors meeting Section 7.2.1.14 with 32in clear width also permitted

**K45 – Normal Illumination**

- All portions of the means of egress must have continuous illumination that:
 - Cannot be controlled by manual switches 7.8.12
 - Motion sensors are permitted if they are equipped with fail-safe and are set to at least 15min interval
 - Is at least 1ft-candle measured at the floor
 - Failure of one-single bulb cannot leave an area with less than .2ft-candle of illumination
 - Have a reliable power source
 - Battery-operated, portable lamps, or lanterns are not permitted to be the primary illumination source of the means of egress

**K46 – Emergency Illumination**

- All portions of the means of egress must have emergency illumination that:
 - Cannot be controlled by manual switches
 - Motion sensors are permitted if they are equipped with fail-safe and are set to at least 15min interval
 - Provides required levels of illumination for 90min
 - Is at least on average 1ft-candle measured at the floor and not less than .1ft-candle at any point
 - .6ft-candle average and .06ft-candle at any point at 90th minute
 - Failure of one-single bulb cannot leave an area with less than .2ft-candle of illumination
- Battery-operated emergency lights must be tested:
 - Monthly for 30sec
 - Annually for 90min
 - Individual results for all lights must be on the records

**K47 – Exit Signs**

- Exit signs or directional signs must mark exits or the path to exit
 - Not required in single story buildings with less than 30 people when the path to exit is obvious
- Size, illumination levels, emergency illumination requirements and other requirements located in Section 7.10
- “No Exit” signs are required on doors that are not exits or exit access doors, but may easily be confused as parts of the means of egress

**K105 – Essential Electrical System Wiring**

- Buildings that use life support equipment have means of egress illumination, emergency lights, exit and directional lights are supplied by the life safety branch of the essential electrical system
 - Other items permitted on the life safety branch in accordance with NFPA 99
 - Not required if life support equipment is solely for life saving measures
- K105 is only part of the New Health Care Regulation Set, but most requirements are the same for existing health care depending on the requirements when the system was installed



K107 – Alarm System Backup Power

- Fire alarm system with backup power required in accordance with Section 9.6
 - Requires compliance with NFPA 72, National Fire Alarm Code
 - Also requires compliance with NFPA 70, National Electrical Code
- K107 is only part of the New Health Care Regulation Set, but most requirements are the same for existing health care depending on the requirements when the system was installed

**K108 – Generator Set Illumination**

- Alarms, emergency communication, and generator sets are illuminated in accordance with NFPA 70, National Electrical Code
- K108 is only part of the New Health Care Regulation Set, but most requirements are the same for existing health care depending on the requirements when the system was installed

**K48 – Written Fire Safety Plan**

- Facilities must have a written fire safety plan that contains the following requirements:
 - Use of alarms
 - Transmission of alarm to fire department
 - Response to alarms
 - Isolation of fire
 - Evacuation of immediate area
 - Evacuation of smoke compartment
 - Preparation of floor and building for evacuation
 - Extinguishment of fire

**K48 – Written Fire Safety Plan**

- Inclusion of RACE (Rescue, Alarm, Contain, Evacuate/Extinguish) is acceptable, but it does not meet the requirements of the LSC without more detail
- Plans should not have different instructions based on staff determining if the fire is small or large
- Fire plans should be tailored to the individual facility
 - They should not be a template or include information that is not relevant to the facility

**K50 – Fire Drills**

- Fire drills must be conducted at a minimum frequency of one per shift per quarter
 - Drills conducted at shift change count for only shift
- Fire drills must include the transmission of the fire alarm signal and simulation of emergency conditions
 - Drills between 9:00pm and 6:00am can be silent drills
 - Transmission should be done the next day
- Fire drills are conducted to train staff in as many different scenarios as possible
 - Conditions (scenario, location, time, etc.) must be varied

**K51 – Fire Alarm System Installation**

- Fire alarm system must be installed in accordance with NFPA 72, National Fire Alarm Code
 - Fire alarm panel must be installed in a location where it's monitored 24hrs a day
 - Direct staff supervision
 - Electronic supervision by a smoke detector tied to fire alarm system
 - Fire alarm trouble signal must be in a location where it's likely to be heard 24hrs a day
 - Panel in 24hr staffed location
 - Remote annunciator panel with an audible and visual trouble signal in a 24hr staffed location
 - » Monitoring station is not an acceptable means of monitoring trouble signal



K51 – Fire Alarm System Installation

- Fire alarm system must have a reliable source of backup power
- Manual pull stations must be installed at:
 - Proper heights
 - Within the path of egress near all exit doors
 - Must be accessible and must not be obstructed
 - Must meet other applicable requirements in NFPA 72 Chapter 2
- Must have audible and visible notification devices
 - Existing systems do not have to meet visible notification device requirements

**K51 – Fire Alarm System Installation**

- Smoke detectors must be appropriately installed in accordance with NFPA 72
 - Shall be located more than 4in from a wall on the ceiling or between 4in and 12in from the ceiling on the wall
 - Measurements in NFPA 72 Chapter 2 for maximum coverage of a space by a single smoke detector
 - Shall not be installed in the direct airflow of an air supply or return
 - Not within 3ft
 - Located in proper location of sloped ceilings
 - Horizontal line drawn to ceiling at 3ft down from peak
 - Shall not have covers, paint, or other items to obstruct smoke from entering sensing chamber

**K52 – Fire Alarm System Testing and Maintenance**

- Testing and maintenance of fire alarm system must be conducted at the proper frequency in accordance with NFPA 72 Tables 7-3.1 and 7-3.2
 - Different components have different test and inspection frequencies
 - Test frequencies for all systems
 - Quarterly testing of the off-premises transmission equipment
 - Annual test of the entire system

**K52 – Fire Alarm System Testing and Maintenance**

- Quarterly Testing
 - Off-premises transmission equipment
 - This testing can be done as part of the fire drills if receipt of the fire alarm signal is verified and documented
- Annual Testing
 - Must be conducted in accordance with NFPA 72 Chapter 7 and documented in accordance with NFPA 72 Figure 7-5.2.2
 - Vendors are not required to use NFPA form, but all of the information in the NFPA form must be in the vendor created form
 - » Items that are not applicable must be marked as such and not omitted from the form

**K52 – Fire Alarm System Testing and Maintenance**

INITIATING AND SUPERVISORY DEVICE TESTS AND INSPECTIONS							
Loc. A & N	Device Type	Visual Check	Functional Test	Factory Setting	Alarm Setting	Pass	Fail
		J	J			J	J
		J	J			J	J
		J	J			J	J
		J	J			J	J
		J	J			J	J
		J	J			J	J

- Each device must be individually listed to complete this section in an acceptable manner
- There must be information that shows if a visual check, functional test, and sensitivity test were conducted

**K154/K155 – Sprinkler/Fire Alarm System Out of Service**

- If a sprinkler system or fire alarm system is out of service for more than 4hrs in a 24hr period a facility must:
 - Evacuate the affected area, or
 - Conduct an approved fire watch
- Approved fire watch
 - Continuous monitoring of affected area
 - Staff conducting the fire watch must not have any responsibilities in addition to the fire watch
 - Staff must be trained to respond appropriately if discovering a fire



K53/K109 – Smoke Detector Installation

- Resident rooms and common areas must be equipped with smoke detectors in smoke compartments that are not fully sprinklered
 - S&C Memo 05-25
 - Battery-operated smoke detectors are permissible
 - Must be correctly installed
 - Must have a testing and maintenance program
 - » Monthly tests
 - » Battery replacement as specified by manufacturer
 - Heat detectors cannot be used in place of smoke detectors
- Smoke detectors required in corridors in new health care and limited care facilities

**K54 – Smoke Detector Testing and Maintenance**

- Smoke detectors must be sensitivity tested within 1yr of installation and every 2yrs thereafter
 - Smoke detectors that have pass the initial 1yr test and two 2yr test cycles (5yr total) can have the sensitivity test cycle increased to 5yrs
 - Records must be kept to justify 5yr frequency
 - Sensitivity test must use one of the five test methods listed in NFPA 72 Section 7-3.2.1
 - Sensitivity test results must be appropriately documented
 - Continuous monitoring of sensitivity by fire alarm panels meets tests requirements, but the documentation requirement must still be met
 - » Printouts available for review
 - » Facility representative has ability to show sensitivity levels of all smoke detectors on the fire alarm panel or other electronic method

**K55 – Patient Room Windows**

- All resident sleeping rooms have an outside window or door
 - Sill height specified in new health care
 - Windows in atrium walls meet the requirement
 - Windows onto a corridor do not meet the requirement even if the opposite wall is an outside wall

**K56 – Sprinkler System Installation**

- Sprinklers must be installed throughout a facility in accordance with NFPA 13
 - Complete sprinkler system required for all new construction
 - Complete sprinkler system required for certain existing construction types
 - Complete sprinkler system required for all nursing homes, regardless of construction type by Aug. 13, 2003
 - S&C Memo 09-04
 - Waivers and FSEs for lack of sprinklers in certain areas will no longer be permitted after that date
 - There will be no extensions to complete sprinkler installation

**K56 – Common Errors with Sprinklers**

- Common areas that incorrectly lack sprinkler coverage
 - Closets
 - No size requirements to qualify a space as a closet
 - Combustible overhangs that extend more than 4ft off building
 - Room behind dryers
 - Elevator machine rooms
 - No exception in code
 - Elevator shaft
 - Exceptions can be met
 - Electrical rooms
 - Exceptions can be met
 - Walk-in coolers/freezers
 - Linen/Trash Chutes
 - Attics

**K56 – Common Errors with Sprinklers**

- Items connected to sprinklers or sprinkler pipes
- Sprinklers not properly spaced
 - Between 6ft and 15ft apart with most sprinklers
- Single sprinkler exceeds maximum protection area
- Sprinklers installed within 4in of ceiling/wall joint
- Pendants not between 1in and 12in of ceiling



K56 – Common Errors with Sprinklers

- Sprinkler obstructions
 - Light fixtures
 - Cubicle curtains
 - Improperly sized mesh
 - Curtain bunched in front of sprinkler
 - Storage
 - Exit signs
 - Movable walls
 - Book shelf or Filing Cabinet
 - Ductwork
- NFPA 13 Section 5-6 contains tables to show minimum distances from sprinkler to obstructions



K60 – Fire Alarm System Activation

- The fire alarm system must activate notification devices and transmit fire alarm signal upon:
 - Manual fire alarm initiation
 - Manual pull stations
 - Automatic detection
 - Smoke detectors
 - Extinguishment system operation
 - Waterflow device connected to sprinkler system



K61 – Sprinkler System Supervision

- All control valves must be electronically supervised by a device connected to the fire alarm system
 - This is required for compliance with the LSC and supersedes the options available for supervision in NFPA 13
 - Post Indicator Valve must also be monitored
 - Valves that control water supply to floors or other areas of the building



K62 – Sprinkler System Testing and Maintenance

- Testing and maintenance of fire alarm system must be conducted at the proper frequency in accordance with NFPA 25
- Different components have different test and inspection frequencies
- Sprinkler system testing must be conducted by qualified individuals and properly documented
 - NFPA 25 does not contain a required inspection form
 - Appendix B contains some sample forms



K62 – Sprinkler System Common Maintenance and Testing Problems

- Lack of complete supply of spare sprinklers or special sprinkler wrench
- Loaded sprinklers
 - Insulation, lint, grease, paint, corrosion, etc.
 - A sprinkler must be replaced if there is paint on any part of it
- Gauges past due for calibration
- Fire department connection obstructed



K62 – Sprinkler System Common Maintenance and Testing Problems

- Fire department connection caps missing or not secured
- Damaged sprinklers
- Tamper switch and waterflow device not tested
- Five year obstruction investigation if there is evidence that it is necessary
 - NFPA 25 Section 10-2



K63 – Sprinkler System Water Supply

- Sprinkler systems have an adequate and reliable water supply
 - NFPA 13 Chapter 7 shows the minimum requirements concerning the amount of water needed to suppress a fire
- Fire pumps if required are in reliable operating condition
 - Tested and maintained in accordance with NFPA 20, Standard for the Installation of Centrifugal Fire Pumps



K64 – Fire Extinguishers

- Portable fire extinguishers must be installed, tested, and maintained in accordance with NFPA 10, Standard for Portable Fire Extinguishers
- Installation
 - Between 4in and 5ft (No higher than 3.5ft if more than 40lb)
 - Maximum travel distance to Extinguisher
 - Class A (Combustible materials) – 75ft
 - Class C (Live electrical equipment) – 75ft
 - Class K (Kitchen fires) – 30ft



K64 – Fire Extinguishers

- Testing and Maintenance
 - Inspections approximately every 30 days
 - Conducted in accordance with NFPA 10 Section 4-3.2
 - Documentation of monthly check for each extinguisher
 - » Tag or other record permitted for documentation
 - Annual Inspections
 - Conducted by trained individual in accordance with NFPA 10 Section 4-4
 - Six year maintenance and 12 year hydrostatic tests as applicable
 - Overcharged or undercharged fire extinguishers must be removed and replaced



K66 – Smoking Regulations

- Facility must have smoking regulations that have the following requirements at a minimum:
 - Smoking in an area where flammable liquids, combustible gases, or oxygen is used or stored is prohibited
 - Smoking by a resident classified as not safe is prohibited
 - Noncombustible ashtrays of safe design shall be provided in all designated smoking areas
 - Metal containers with self-closing lids intended solely for the emptying of ashtrays shall be readily available at all smoking areas



K66 – Smoking Regulations

- Common problems with smoking
 - Smoking by residents using oxygen
 - Unacceptable receptacles used as ashtrays
 - Coffee cans, clay pots, pop cans, paper cups, etc.
 - Smoking in undesignated areas
 - Unsafe smokers not properly supervised
 - Ashtrays emptied into trash cans
 - Trash placed in metal container for ashtray emptying
 - Snuffing out cigarettes for later



K67 – HVAC Requirements

- Corridors cannot be used as return air plenums
 - A balanced HVAC system is required
 - If there is an air supply in the corridor there must be an air return in that corridor
 - If there is an air supply in a room there must be an air return in that room
 - » Bathroom exhaust fans can balance a system with a supply in an adjacent room if the fan runs continuously
 - Unbalanced systems are created when there is a supply in a room and only a return in the corridor or vice versa
 - » A bathroom exhaust fan does not created an unbalanced system



K67 – HVAC Requirements

- Fire dampers are required where ducts penetrated vertical enclosures
 - This deficiency results in a “Not Met” at CMS-2786T Table 8.C
 - The “Not Met” results in a failing FSES
 - An FSES cannot be used to correct this deficiency



K68 – Combustion Air

- Combustion and ventilation air for boiler, incinerator, and heater rooms is taken from and discharged to the outside
- Combustion and ventilation openings shall not be blocked to prevent air movement
- Heating devices must have safety features to immediately stop the flow fuel and shut down the equipment for excessive temperature or ignition failure



K69 – Cooking Facilities Protection

- Cooking facilities protected in accordance with NFPA 96
 - Not required for serving kitchens where cooking is not conducted
- Hood, exhaust, and grease removal devices installed in accordance with NFPA 96 Chapters 2-5
 - Mesh filters shall not be used
 - Filters installed at an angle not less than 45° from horizontal
- Testing and Maintenance
 - System cleaned at intervals in accordance with NFPA 96 Table 8-3.1
 - Testing required every 6 months by a trained individual



K69 – Cooking Facilities Protection

- Range hood extinguishing system
 - Must be UL 300 compliant
 - No dry chemical systems have passed UL 300 and are no longer manufactured
 - CMS did not require an immediate upgrade after NFPA 96, 1998 Edition, and LSC, 2000 Edition, were adopted on Mar 13, 2003
 - Upgrade required if one of these occurred after Mar 13, 2003:
 - » System discharged due to a fire
 - » 6 year maintenance of dry chemical due
 - » 12 year hydrostatic test due
 - Either the 6yr or 12yr must have been due for all systems since 3/13/03, so all systems should be UL 300 compliant



K69 – Cooking Facilities Protection

- Common errors in the kitchen
 - No K Type extinguisher
 - No automatic fuel shut-off
 - No manual activation device for range hood suppression system
 - Improperly located or obstructed manual activation device
 - Suppression system does not cover cooking appliances



K70 – Portable Space Heaters

- Portable space heaters are prohibited in health care facilities
 - Exception – Space heaters are permitted in nonsleeping staff only areas where the heating element does not exceed 212°F
- Policies
 - A verbal policy is sufficient if portable space heaters are not allowed
 - A written policy is required if the exception is used
 - Must contain at least the language in the exception



K71 – Laundry and Trash Chutes

- Laundry chute must be enclosed in a 1hr FRR enclosure with 1hr rated self-closing door
- Must be sprinkler protected
- Trash chutes shall discharge into a room that is used for no purpose other than trash collection



K160 – Elevators

- Any elevator that travels more than 25ft above or below the level that best serves the needs of emergency personnel must be equipped with fire fighter recall
 - Most three-story buildings would meet the 25ft
 - Buildings four or more stories would definitely meet the 25ft
- Elevator upgrade waivers have been granted for up to 3 years



K161 – Dumbwaiters

- Dumbwaiters must meet the requirement of LSC Section 9.4.2.2
- Power dumbwaiters must include locking devices that prevent the door from opening on floors except where the dumbwaiter is located



K72 – Furnishing Obstructions of Means of Egress

- No furnishings, decorations, or other objects can obstruct or disguise the means of egress
 - Couches, chairs, tables, or other furniture in the exit access corridor
 - Medication carts, crash carts, and isolation carts are permitted in the corridor
 - Clean linen carts, soiled linen bins, housekeeping carts, computers on wheels, food carts, etc. are permitted while in use
 - Drapes or other items cannot cover exit doors



K73 – Flammable Furnishings and Decorations

- No furnishings or decorations of highly flammable character
 - Corn stalks, hay bales, cotton cobwebs, real Christmas trees
 - Live potted plants with a root system are permissible
 - Paintings or pictures are permitted to be affixed to the wall if in limited quantities
 - Candles shall not be used
 - Decorative candles permitted if wicks are cut
 - Candles may be lit for religious ceremonies while attended
 - Birthday candles are permitted
 - » No residents using oxygen can be in the room with candle



K74 – Drapes and Curtain Requirements

- Drapes, cubicle curtains, and other loosely hanging fabrics must meet the requirements of NFPA 701
 - Facility must have documentation that shows items meet NFPA 701 or is flame retardant or fire resistant in accordance with an equivalent standard to NFPA 701
 - A tag on the item is sufficient if it contains the required information
 - Not required for shower curtains



K75 – Soiled Linen and Trash Receptacles

- Soiled linen or trash collection receptacles cannot exceed 32gal
- A capacity of 32gal shall not be exceeded in a 64sqft area
- Mobile receptacles larger than 32gal shall be stored in hazardous rooms when not attended



K31, K131-K136 - Laboratories

- These 7 K tags apply to the requirements for laboratories in accordance with NFPA 99 Chapter 10



K76 – Medical Gas Storage and Administration

- Must meet requirements of NFPA 99
- Storage up to 300cuft can be kept in an area that is not a designated storage area
- Storage between 300cuft and 3000cuft must be in a storage room
- Storage over 3000cuft must be in a 1hr FRR enclosure
 - 45min FRR self-closing and latching door
 - Vented outside
- Storage of liquid oxygen must be in a 1hr FRR enclosure
 - Door and venting requirements also apply



K76 – Medical Gas Storage and Administration

- Common errors
 - Oxygen cylinders not individually secured
 - Casters for liquid oxygen containers secures them from tipping
 - Full and empty cylinders not physically separated
 - Combustible items stored too close to oxygen
 - Alcohol based hand rubs stored in same room
 - Items draped over oxygen containers
 - Can trap vented oxygen from liquid containers
 - Oxygen expelling while not used by a resident



K76 – Medical Gas Storage and Administration

- Common errors
 - Oxygen used in proximity to flames or heat source
 - Oxygen used while a resident is under a hood hair dryer
 - Oxygen used while a resident was smoking
 - Oxygen used while a resident blew out birthday candles



K77/K140 – Piped in Medical Gas Systems

- Piped systems must meet the requirements of NFPA 99 Chapter 4
 - Piped systems
 - 4 Levels
 - Vacuum systems
 - 4 levels



K78 – Anesthetizing Locations

- Anesthetizing locations must meet the requirements of NFPA 99

K142 – Hyperbaric Facilities

- Hyperbaric facilities must meet the requirements of NFPA 99 Chapter 19



K141 – No Smoking Signs

- No smoking signs must be located in areas where oxygen is used or stored
 - Not required in each location if smoking is prohibited in the facility and signs are prominently placed at all major entrances



K142 – Hyperbaric Facilities

- Hyperbaric facilities must meet the requirements of NFPA 99 Chapter 19



K143 – Oxygen Transferring

- Oxygen transferring must be conducted in a properly protected room:
 - 1hr FRR enclosure with a 45min FRR self-closing and latching door
 - Noncombustible floor for the entire room
 - Concrete or ceramic tile
 - Mechanically ventilated to the outside
 - Sprinkler protected
 - Door has a sign stating oxygen transferring is occurring



K145 – Life Support System Backup Power Requirements

- All hospitals and nursing homes that admit residents requiring life support must have a Type I Essential Electrical System (EES)
- Type I EES is broken down into the Emergency System and the Equipment System
 - Emergency System has the life safety branch and critical branch
 - Equipment system has the equipment branch only



K145 – Life Support System Backup Power Requirements

- Life safety branch permitted items: Means of egress lights, exit signs, alarm systems, communication systems, task illumination(genset), elevators, automatically operated doors
- Critical branch permitted items: Critical care areas, isolated power systems, patient care areas, nurse call, blood banks, telephone equipment, medical task illumination
- Equipment branch permitted items: Suction systems, sump pumps, compressed air systems, smoke control systems, kitchen hood systems, other exhaust systems, other similar systems



K146 – Generator Installation, Testing, and Maintenance

- K106 established that a Type I EES is required in nursing homes with life support equipment
- Nursing homes without life support equipment that use generators for backup power must have a Type II EES
 - There is an exception in NFPA 99 that allows nursing homes that have a no admit policy for life support to use only batteries for backup power
 - This does not permit a nursing home to have a Type III EES



K144 – Generator Installation, Testing, and Maintenance

- Type I and Type II EESs must use a Level 1 generator in accordance with NFPA 110
- Level 1 generators must be inspected weekly and tested under load monthly
- Weekly inspections
 - As specified by the manufacturer
 - If manufacturer weekly inspection requirements are unknown, the maintenance schedule in NFPA 110 Appendix A can be used



K144 – Generator Installation, Testing, and Maintenance

- Monthly load testing must meet one of the following minimum requirements for 30 minutes:
 - At not less than 30% of the nameplate rating
 - With a load that maintains the minimum exhaust temperature as recommended by the manufacturer
- Weekly inspections and monthly tests must be completely documented



K144 – Generator Common Errors

- Generator lacks a remote annunciator panel
 - Requirement has been in existence in a reduced form since the 1960s
 - Older installations need a minimum panel
 - Audible trouble indicator
 - Visual indicators for trouble and generator operation
- Storage in generator enclosures
- Indoor generators lack battery-powered task illumination
- Natural gas fueled generator lacks proof that the fuel source is reliable



K146 – Generator Common Errors

- Reliability of natural gas fuel source can be proven with a letter from natural gas vendor that contains:
 - A statement the fuel source is reasonable reliable
 - Description supporting the reasonable reliability assertion
 - A statement of the low likelihood of an interruption
 - Description supporting the low interruption assertion
 - Signature from technical personnel



K144 – Generator Common Errors

- Test documentation problems
 - Visual inspections are not described
 - Must be itemized each week
 - A document that shows all weekly visual inspections that can be referenced during tests and documentation review
 - Monthly load tests not completely documented
 - Measurements taken from one leg only on a three phase generator
 - Comment that test was more than 30% of nameplate rating with no supporting data



K147 – Electrical Requirements

- Electrical wiring must be in accordance with NFPA 70, National Electrical Code
- Common problems
 - Power strips used for items other than computers, TVs, and other electronic equipment for which they were designed
 - Unacceptable devices plugged into power strips
 - High current draw : hair dryers, refrigerators, microwaves, coffee pots, air conditioners, etc.
 - Medical equipment



K147 – Electrical Requirements

- Hospital grade power strips refers only to their mechanical construction
 - They are still not permissible with high current draw devices or medical equipment
- Exposed wiring
 - Missing light switch and outlet covers
 - Missing junction box cover plates
 - Frayed electrical wires
 - Low voltage wires can be exposed



Annual Waivers

- Annual waiver requests must show two things to be considered
 - Corrective action would create an undue hardship on the facility
 - Lack of corrective action will not adversely affect resident safety
- LSC waiver for recertification surveys are submitted to the state agency
- LSC personnel within the state agency review the waiver request and forward the request with their recommendation to RO V



Annual Waivers

- LSC PPR reviews the waiver request and makes a decision based on LSC knowledge, SA recommendation, precedent, CO guidance, and safety engineer consultation
- Waiver decisions are sent back to the SA
 - Denials require an acceptable POC be submitted or additional waiver information be submitted
 - Approved waivers are good until the next LSC survey is conducted



Fire Safety Evaluation System (FSES)

- Form CMS-2786T is completed in accordance with NFPA 101A, 2001 Edition
- CMS-2786T must be completed for all smoke zones
 - One sheet can be used for identical zones with justification
- FSES must reflect all deficiencies that are present the day the form is completed
- A table of alternates can accompany a failing FSES to show how a POC will eventually lead to a passing FSES



Fire Safety Evaluation System (FSES)

- FSES can be conducted by the SA or they can act as the first reviewer of a facility completed FSES
 - Decision to conduct an FSES is left to the discretion of the SA
- LSC PPR will evaluate submitted FSES
- LSC PPR will accept a passing FSES or submit a list of errors for the SA to pass on to the facility



Questions?

